UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,194	11/09/2001	Haruyama Shinichi	678-756 (P9786)	6677

28249 7590 05/21/2007

DILWORTH & BARRESE, LLP
333 EARLE OVINGTON BLVD.
SUITE 702
UNIONDALE, NY 11553

EXAMINER	
JAMAL, ALEXANDER	

ART UNIT	PAPER NUMBER
2614	

MAIL DATE	DELIVERY MODE
05/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/037,194	SHINICHI ET AL.	
	Examiner	Art Unit	
	Alexander Jamal	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Based upon the submitted amendment, the examiner notes that claims 1,3 and 6 have been amended.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 3-5** rejected under 35 U.S.C. 102(e) as being anticipated by Tran (6184833).

As per **claims 3,4,** Tran discloses a portable phone (Figs. 14a,14b) with a dual strip antenna (dipole antenna pattern) arranged on a PCB surface (Col 6 line 61 to Col 7 line 5). Tran discloses the antenna may be micro-etched onto one side of a printed circuit board (a second surface) (Col 6 lines 65-68). Tran additionally discloses that the antenna may be mounted opposite to a mounted speaker in the device (Col 5 lines 45-55) (Col 10 lines 5-20). Examiner reads a PCB as any structure that supports said speaker (a first

surface), and notes that mounting an antenna behind a speaker would be on the opposite side of the PCB that supports and electrically couples said speaker. The examiner notes that any supporting structure for the dual strip antenna (such as the 'ground plane' noted in Col 6 lines 60-65) could be considered an 'antenna board' as used in claim 4. Tran's phones comprise antennas that are used to radiate waves (Col 1 lines 20-25). A wave comprises a modulated voltage/current signal that will 'resonate' at whatever frequencies are being transmitted. Any modulated data that is transmitted from the phone will require 'resonant current' in order to produce the frequencies for whatever signaling protocol is being used.

As per **claim 5,** the antenna (and it's dielectric) form a multi-layered structure to be mounted on the PCB (Fig. 4).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1,2** rejected under 35 U.S.C. 103(a) as being unpatentable over Wong (6615026), and further in view of Thill (5678201).

As per **claim 1,** Wong discloses a plurality of antennas with each antenna coupled to power-feed phase control means (Col 3 lines 40-60, Fig. 5). The antennas are dipole antennas (Col 2 lines 45-57). Wong discloses that a radiation pattern is controlled to reduce the exposure of the human head to the radiation. The radiation pattern is controlled by controlling the amplitude or phase of the radiating elements which will control the phase and amplitude of any current fed into the antennas. Electromagnetic waveforms cancel each out when they collide (it is a property inherent to waveforms). The cumulative radiation dispersion from an antenna array is comprised of the individual antenna radiations canceling and adding to each other. Since Wong discloses controlling the phase of each antenna in order to direct the overall radiation away from the user's head, his system comprises controlling phase to cancel the waves in the vicinity of the user's head. Wong's phones comprise antennas that are used to radiate waves (Col 1 lines 10-25). A wave comprises a modulated voltage/current signal that will 'resonate' at whatever frequencies are being transmitted. Any modulated data that is transmitted from the phone will require 'resonant current' in order to produce the frequencies for whatever signaling protocol is being used. However, Wong does not disclose each antenna coupled to an individual BALUN.

Thill teaches the well known concept of using a BALUN coupled to an individual radio antenna (ABSTRACT). Thill teaches that a BALUN acts to match impedance characteristics between an antenna and the driving or receiving circuitry (Col 1 lines 10-35). It would have been obvious to one of ordinary skill in the art at the time of this

application that each antenna could be coupled with a BALUN for the purpose of matching impedances between each stage in the circuit.

As per **claim 2,** the phase control means will adjust the power distribution ratio by varying the phases (and as such, the amplitudes) of each respective antenna signal. Wong further discloses directly controlling the amplitude of the radiating element which will also control the power distribution ratio of any current fed into the antennas. (Col 3 lines 40-45).

6. **Claim 6** rejected under 35 U.S.C. 103(a) as being unpatentable over Tran (6184833), and further in view of Wong (6615026) and further in view of Thill (5678201).

As per **claim 6,** Tran discloses a portable phone comprising a dipole antenna mounted on a PCB opposite a speaker (as per claim 3-5 rejections). However, Tran does not disclose that the antenna is a set of dipole antennas that are fed the same power through phase control means, or that each antenna is coupled to an individual BALUN

Wong discloses a plurality of antennas with each antenna coupled to phase control means as per the rejection of claims 1,2. Wong further teaches that an array of phase controlled antennas may be used to control the direction of the radiated energy (Col 3 lines 40-60) and allow for better reception. It would have been obvious to one of ordinary skill in the art at the time of this application that an array of antennas with phase

controlled power-feed could be used in the portable phone for the advantage of greater control of the radiated signals and allowing greater transmission energy to be steered towards a base station away from the user's head.

Thill teaches the well known concept of using a BALUN coupled to an individual radio antenna (ABSTRACT). Thill teaches that a BALUN acts to match impedance characteristics between an antenna and the driving or receiving circuitry (Col 1 lines 10-35). It would have been obvious to one of ordinary skill in the art at the time of this application that each antenna could be coupled with a BALUN for the purpose of matching impedances between each stage in the circuit.

Response to Arguments

7. Applicant's arguments with respect to claims 1-6 have been considered but are moot in view of the new grounds of rejection.

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498. The examiner can normally be reached on M-F 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499. The fax phone numbers for the organization where this application or proceeding is assigned are **571-273-8300** for regular communications and **571-273-8300** for After Final communications.

Examiner Alexander Jamal
May 11, 2007

CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600